

AD-A104 162

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2  
193048 MLRS, MISSILE NUMBER V-38-001, ROUND NUMBER V-182/IW-1, --ETC(U)  
AUG 81 D C KELLER

UNCLASSIFIED ERADCOM/ASL-DR-1203

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9 METEOROLOGICAL DATA REPORT

10 19304B MLRS,  
Missile Number V-38-001,  
Round Number V-182/IW-1

10 Aug 81

10 August 1981.

11 12 26  
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ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19304B MLRS, Missile No. V-38-001, Round No. V-182/IW-1 presented in tabular form.		

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Justification	
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## INTRODUCTION

19304B MLRS, Missile Number V-38-001, Round Number V-182/IW-1, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1508:56 MDT, 10 Aug 81. The scheduled launch time was 1400 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations.

#### a. Surface:

(1) Standard surface observations to include pressure, temperature ( $^{\circ}$ C), relative humidity, dew point ( $^{\circ}$ C), density ( $gm/m^3$ ), wind speed and direction, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air:

(1) Low level wind data were obtained from Pilot-Balloon observations at:

### SITE AND ALTITUDE

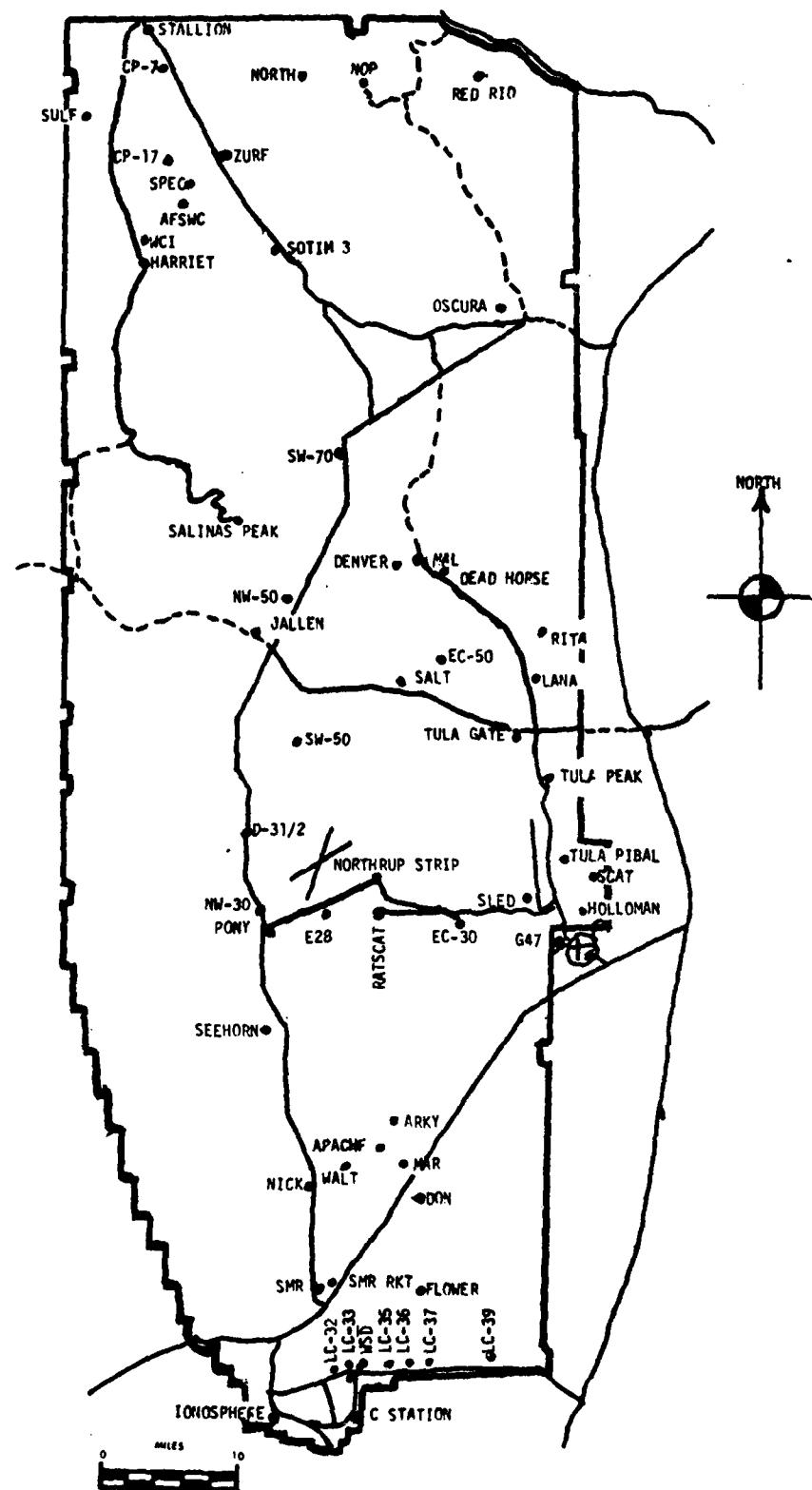
LC-33	2 KM
NICK	2 KM

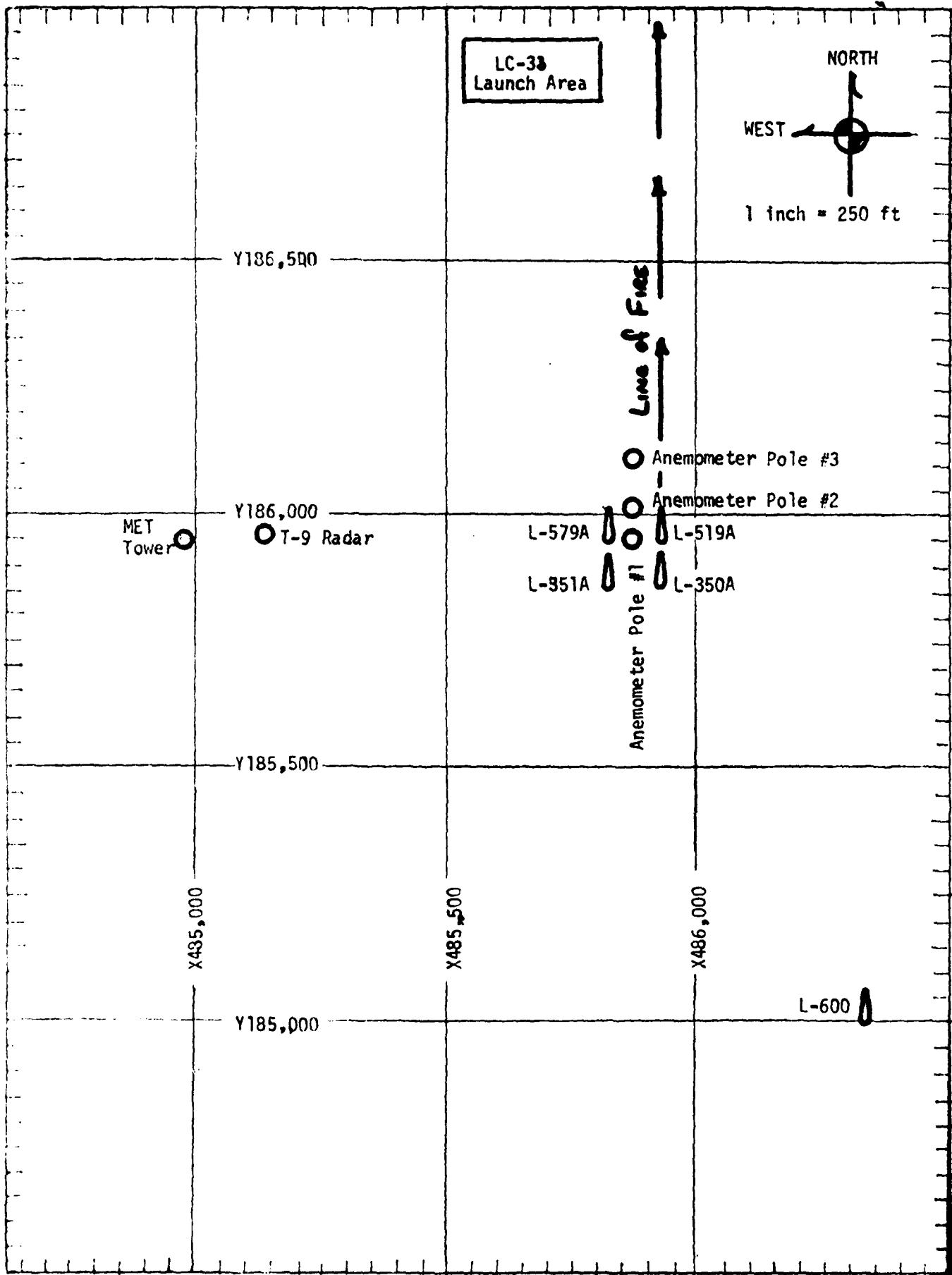
(2) Air structure data (rawinsonde) were collected at the following Met Sites:

### SITE AND TIME

LC-37	1200 MDT
WSD	1300 MDT
LC-37	1430 MDT
WSD	1515 MDT

## WSMR METEOROLOGICAL SITES





PROJECT SUPERINNOVATION

TABLE I

DATE 10-14-1981

F. D. 352-111

STATION 1 C-33

$$x = 485.135.76 \quad - \quad y = 185.919.24 \quad H = 3.988.57$$

卷之三

VISIBLE -

PSYCHOMETRIC COMPUTATION

PSYCHROMETRIC CHART	
TIME: MDT	1509
DRY BULB TEMP.	31.5
WET BULB TEMP.	19.8
WET BULB DEPR.	11.7
DEW POINT	14.4
RELATIVE HUMID.	36

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	134	06	T-30	141	05	T-30	163	07
T-20	121	08	T-20	146	08	T-20	168	08
T-10	131	10	T-10	152	09	T-10	146	10
T0.0	142	10	T0.0	150	10	T0.0	156	11
T+10	119	07	T+10	132	07	T+10	150	11

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	118	10	T-30	157	11
T-20	099	13	T-20	180	16
T-10	108	13	T-10	169	15
T0.0	114	14	T0.0	171	16
T+10	115	13	T+10	176	16

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	148	10	T-30	157	15
T-20	167	16	T-20	158	15
T-10	164	15	T-10	157	14
T0.0	169	16	T0.0	154	15
T+10	172	15	T+10	168	15

TABLE 4

## T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 10 Aug 81

SITE: LC-33  
 TIME: 1509 MDT  
 WSTM COORDINATES:  
 X= 484,837.34  
 Y= 184,124.44  
 H= 3,975.57

SITE: NICK  
 TIME: 1509 MDT  
 WSTM COORDINATES:  
 X= 470,734.56  
 Y= 255,775.64  
 H= 4,126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS	LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	145	07	SURFACE	145	04
150	161	11	150	152	09
210	160	11	210	154	10
270	156	11	270	156	10
330	153	12	330	159	10
390	152	12	390	158	10
500	148	13	500	152	09
650	146	13	650	138	08
800	150	12	800	134	12
950	153	09	950	138	15
1150	146	08	1150	142	15
1350	151	10	1350	140	16
1550	147	15	1550	141	15
1750	145	16	1750	136	12
2000	142	13	2000	141	11

TABLE 5AIMING AND T-TIME COMPUTER MET MESSAGES  
10 Aug 1981

LC-37 1200 MDT	WSD 1300 MDT	LC-37 1430 MDT	WSD 1514 MDT
METCM1324063	METCM1324064	METCM1324063	METCM1324064
101800122882	101900124884	102050122880	102120124882
00178002 30510882	00204004 30530884	00231004 30670880	00240010 30670882
01167005 30320873	01249008 30400874	01257005 30490871	01259015 30520872
02317003 29910848	02265010 30100850	02233009 30090846	02266011 30170848
03241007 29500810	03258009 29710812	03263012 29680809	03272012 29790810
04244005 29020764	04255009 29240766	04279011 29180763	04278012 29310765
05243007 28630720	05172008 28830722	05236009 28730719	05286009 28810721
06201007 28300678	06120005 28440681	06227006 28330678	06211005 28420679
07243002 27950639	07223002 28090641	07037003 27950638	07154005 28040640
08199004 27600601	08243003 27720603	08035003 27610600	08116004 27680602
09149004 27200564	09173004 27330567	09085007 27310564	09195008 27280566
10098006 26900530	10213007 27030532	10194008 27020530	10247008 27000531
11065005 26760497	11297005 26730500	11320005 26760497	11423005 26740499
12461005 26260452	12443007 26290454	12433009 26290451	12436011 26280453

STATION ALTITUDE 4051.37 FEET MSL  
 10 AUG. 81 1200 HRS MDT  
 ASCENSION NO. 181

SIGNIFICANT LEVEL DATA  
 2220100181

LC-37

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE DEGREES	AIR DEPOLLUT CENTIGRADE	R.H. PERCENT
882.4	4051.4	29.8	14.7	40.0
850.0	5138.4	24.0	12.0	47.0
773.0	7834.2	16.3	9.7	65.0
746.2	8817.8	13.3	10.1	61.0
700.0	10580.7	10.4	5.6	72.0
666.4	11222.8	7.6	3.3	74.0
657.6	12283.1	7.1	3.5	63.0
632.4	13336.6	4.8	-1.6	62.0
615.6	14057.5	3.6	-6.1	49.0
582.8	15511.3	4	-8.5	51.0
550.6	17000.2	-3.7	-10.3	60.0
519.0	18532.9	-4.8	-22.7	23.0
500.0	19494.7	-6.4	-25.6	20.0
460.4	20519.6	-8.1	-24.6	25.0
435.6	23000.1	-12.5	-29.3	23.0
400.0	25123.2	-17.2	-34.2	21.0
371.4	26941.6	-20.7	-30.7	40.0
337.8	29229.6	-25.2	-42.0	19.0
300.0	32030.7	-31.6	-47.0	20.0

STATION ALTITUDE 4051.37 FEET MSL  
10 AUG. 81 1200 hrs MDT  
ASCENSION NO. 181

UPPER AIR DATA  
2220160101  
LC-37

OUT TIC COORDINATES  
32°40'17.5 LAT DEG  
106°31'23.2 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DEUTERIUM MOLER	RELATIVE SOUND KNOTS	SPLIT OF WIND DATA DEGREES (1) WIND DIRECTION DEGREES (1)	WIND DATA SPLIT KNOTS	INDEX OF REFRACTION
4051.4	882.4	29.8	14.7	40.0	1007.4	080.5	100.0	1.9
4050.0	868.9	27.4	13.7	42.9	1000.2	077.7	112.1	2.5
5000.0	054.1	24.7	12.4	46.1	992.4	074.5	120.1	3.3
5500.0	839.2	23.0	11.6	49.4	981.1	072.5	125.1	4.0
6000.0	824.6	21.5	11.5	52.8	968.7	070.9	128.5	4.8
6500.0	810.2	20.1	11.1	56.1	956.5	069.2	130.9	5.6
7000.0	796.0	18.7	10.6	59.4	944.5	067.6	133.1	6.1
7500.0	782.2	17.3	10.1	62.6	932.6	065.9	136.2	6.7
8000.0	768.4	15.8	9.8	67.7	920.9	064.2	139.9	5.3
8500.0	754.8	14.3	10.1	75.6	909.1	062.5	144.9	6.1
9000.0	741.3	13.0	9.6	80.1	896.9	061.0	146.7	7.2
9500.0	728.0	12.2	8.4	77.5	883.7	060.0	159.3	7.4
10000.0	714.9	11.4	7.1	75.0	870.7	058.9	129.5	7.4
10500.0	702.1	10.5	5.8	72.4	857.8	057.8	120.1	6.4
11000.0	689.3	9.5	4.9	72.6	845.5	056.6	112.6	5.9
11500.0	676.8	8.5	4.0	73.4	833.4	055.3	107.7	5.5
12000.0	664.5	7.5	2.7	71.6	821.4	054.0	111.2	4.3
12500.0	652.3	6.6	0.1	62.8	809.4	052.8	121.0	3.0
13000.0	640.3	5.5	-1.1	62.3	797.8	051.4	136.5	2.4
13500.0	628.6	4.5	-2.8	59.1	786.2	050.2	142.3	2.1
14000.0	616.9	3.7	-5.7	50.0	774.4	049.0	126.1	1.9
14500.0	605.4	2.6	-6.8	49.6	763.0	047.7	106.1	2.5
15000.0	594.1	1.5	-7.7	50.3	751.9	046.4	94.3	3.3
15500.0	583.0	0.4	-8.5	51.0	740.9	045.0	89.8	4.3
16000.0	572.0	-0.9	-9.1	54.0	730.6	043.6	85.8	5.0
16500.0	561.2	-2.3	-9.7	57.0	720.5	041.8	70.7	5.1
17000.0	550.6	-3.7	-10.3	60.0	710.5	040.1	71.2	5.2
17500.0	540.1	-4.1	-13.4	47.9	698.1	039.5	63.5	5.4
18000.0	529.8	-4.4	-17.2	35.9	686.0	039.0	57.2	5.4
18500.0	519.7	-4.8	-22.3	23.8	674.1	038.4	50.9	5.2
19000.0	509.7	-5.6	-24.1	21.5	663.2	037.5	44.3	4.9
19500.0	499.9	-6.4	-25.6	20.0	652.5	036.4	36.2	4.5
20000.0	490.2	-7.2	-25.0	22.5	641.4	035.5	20.1	5.4
20500.0	480.8	-8.1	-21.6	24.9	631.4	034.5	14.9	1.000161
21000.0	471.4	-9.0	-25.5	24.6	621.2	033.4	271.2	3.0
21500.0	462.2	-9.8	-26.4	24.2	611.1	032.3	252.0	5.3
22000.0	453.1	-10.7	-27.4	23.8	601.2	031.3	215.6	1.000149
22500.0	444.5	-11.6	-28.3	23.4	591.5	030.2	241.5	7.6
23000.0	435.6	-12.5	-29.3	23.0	581.9	029.1	236.1	7.3
23500.0	426.9	-13.6	-30.4	22.5	572.6	028.0	216.5	1.000130

STATION ALTITUDE 4051.37 FEET MSL  
 10 AUG. 81 1200 THIS MDI  
 ASCENSION NO. 181

UP, R AIR DATA  
 2220160161  
 LC-37

TABLE 7 CON'T

DEPARTMENT	PRESSURE	TEMPERATURE	REL. HUM.	WEIGHT	SPEED OF	DIRECTION	WIND DATA	INDEX
ALITUDE	AIR	DEPOINT	PERCENT	GM/CUBIC	KNOTS	DEGREES (W)	SPD (W)	OF
ASL FEET	MILLARS	DEGREES CENTIGRADE	METER	KIOTS	DEGREES (W)	KNOTS	WINDS	REFRACTION
2400.0	410.5	-14.7	-51.6	22.1	563.0	020.4	203.1	6.6
2450.0	410.1	-15.0	-52.0	21.6	555.0	025.1	199.4	8.1
2500.0	402.0	-16.9	-53.9	21.1	546.4	023.7	201.6	9.9
2550.0	392.9	-17.9	-53.1	24.9	537.5	022.5	207.3	12.0
2600.0	385.9	-18.9	-52.0	30.2	528.6	021.3	209.5	13.3
2650.0	370.2	-19.9	-51.2	35.4	519.0	020.2	209.6	13.8
2700.0	370.5	-20.8	-31.0	39.5	511.3	019.0	211.5	14.4
2750.0	362.9	-21.8	-33.1	34.9	502.0	017.0	215.1	15.3
2800.0	355.5	-22.8	-35.4	30.3	494.4	016.5	220.1	16.1
2850.0	348.2	-23.0	-37.9	25.7	486.2	015.3	227.9	16.8
2900.0	341.0	-24.7	-40.6	21.1	478.2	014.1	232.6	17.0
2950.0	334.0	-25.8	-42.5	19.1	470.3	012.7	231.0	20.2
3000.0	327.0	-27.0	-43.3	19.3	462.6	011.3	231.0	21.5
3050.0	320.1	-28.1	-44.2	19.5	455.0	010.9	233.5	21.4
3100.0	313.4	-29.2	-45.1	19.6	447.6	008.5		1.000100
3150.0	306.8	-30.4	-46.0	19.8	440.2	007.0		1.000099
3200.0	300.4	-31.5	-46.9	20.0	433.1	005.6		1.000097

STATION ALTITUDE 4051.37 FEET MSL  
10 AUG. 81 1200 HRS WDT  
ASCENSION NO. 181

MANOMETRIC LEVELS  
2220180181  
LC-37  
TABLE 8

GEODETIC COORDINATES  
32.40175 LAT DEG  
106.31232 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPNT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5155.	24.0	12.0	47.	121.7	3.5
800.0	6862.	19.1	10.8	58.	132.3	6.2
750.0	8669.	13.7	10.1	79.	146.4	6.5
700.0	10570.	10.4	5.6	72.	118.5	6.3
650.0	12584.	6.4	-2.2	63.	123.4	2.9
600.0	14723.	2.1	-7.2	50.	99.5	2.6
550.0	17006.	-3.7	-10.5	59.	70.9	5.2
500.0	19467.	-6.4	-25.6	20.	36.6	4.5
450.0	22146.	-11.0	-27.7	24.	244.2	7.8
400.0	25081.	-17.2	-34.2	21.	203.0	10.3
350.0	28326.	-23.5	-37.2	27.	225.9	16.5
300.0	31966.	-31.6	-47.0	20.		

TABLE 9  
EFFECT OF  
PRESSURE  
ON  
THE  
ADSORPTION  
OF  
GASES  
ON  
MATERIALS  
AT  
20°C.

TABLE 9  
EFFECT OF  
PRESSURE  
ON  
THE  
ADSORPTION  
OF  
GASES  
ON  
MATERIALS  
AT  
20°C.

PRESSURE	ATMOS.	ATMOS.	ATMOS.	ATMOS.
0.34	0.0	3.05	0.0	30.2
3.67	0.0	4.53	7.1	28.2
6.56	0.0	21.32	0.3	26.0
7.54	0.0	35.15	0.3	15.8
7.02	0.0	1.96	0.45	11.3
6.02	0.0	12.6	0.7	8.0
6.56	0.2	1.23	6.0	7.6
6.56	0.2	13.65	0.2	5.0
5.56	0.0	1.04	0.2	-0.2
5.46	0.0	1.72	3.5	-2.4
5.58	0.4	1.76	2.5	-3.1
5.26	0.9	1.61	1.8	-3.0
5.10	0.3	1.95	7.9	-6.2
4.75	0.0	2.04	2.4	-8.3
4.76	0.4	2.11	0.8	-8.2
4.97	0.6	2.47	0.0	-16.0
4.99	0.6	2.51	7.5	-16.9

TABLE 10

STATION LATITUDE 39°. 0 FT. 1.  
10 AUG. 1 13. 00 MDT  
ATLANTIC 45°. 40. 265

TABLE 12. 2001-2

... 001111 000011111111  
32.400003 1.11 0.65  
1.00.37033 1.00.1.00

TABLE 10 CON'T

GEOPHYSICAL PRESSURE	TEMPERATURE AT 1000 FT	WINDS AT 1000 FT	WINDS AT 500 FT	WINDS AT 100 FT	WIND DIRECTION AT 1000 FT	WIND DIRECTION AT 500 FT	WIND DIRECTION AT 100 FT	INFLUX OF REFRACTIOM
25500 ft	42.6°.7	-13°.3	-36°.5	15°.5	57.6°.4	62.6°.5	52.1°.4	1.300150
24000 ft	41.7°.3	-15°.0	-35°.3	15.0	56.5°.6	62.6°.1	52.0°.0	1.000128
24500 ft	41.1°.1	-16°.1	-35°.1	16.9	55.7°.9	62.4°.6	52.4°.6	1.000126
25000 ft	40.2°.9	-16°.3	-32°.4	24.2	54.7°.5	62.2°.9	52.2°.9	1.000124

STATION ALTITUDE 3989.00 FEET  
16 AUG. 1961 1300 HRS. WDI  
ASCUS 5101.0.0. 543

ALTIMETER  
22200.0.43  
WITF 5A.05

UTM FILE COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

TABLE 11

REFLECTOR NUMBER	REFLECTOR HEIGHT	REFLECTOR TYPE	REFLECTOR HEIGHT	REFLECTOR HEIGHT	REFLECTOR HEIGHT
REFLECTOR NUMBER	REFLECTOR HEIGHT	REFLECTOR TYPE	REFLECTOR HEIGHT	REFLECTOR HEIGHT	REFLECTOR HEIGHT
5129.	26.0	11.7	4.5	141.2	7.6
6167.	20.8	11.2	5.6	144.3	6.2
756.0	16.4	6.5	6.7	129.0	0.0
705.0	105.94.	11.3	4.7	79.7	0.5
655.0	120.12.	7.2	-1.1	50.	2.5
606.0	147.59.	5.0	-7.6	45.	1.7
555.0	170.51.	-2.3	-19.2	39.	110.0
506.0	195.20.	-6.2	-28.5	15.	160.7
450.0	222.3.	-10.6	-32.0	15.	240.8
409.0	251.35.	-16.9	-30.7	29.	6.0

TRANSIENTS 4,51,17,18  
10 86.1 145.4 MDT  
850.513 6.0. 1.2

TRANSIENTS 4,51,17,18  
10 86.1 145.4 MDT  
850.513 6.0. 1.2

ALOGIC COORDINATES  
32.40173 LAT 06.  
106.31232 LONG. 06.

TABLE 12

TRANSIENTS	ALAT	ALTITUDE	TIME	ALAT	ALTITUDE	TIME	ALAT	ALTITUDE	TIME
096.4	4651.4	31.6	15.0	35.0	15.0	15.0	35.0	15.0	15.0
356.3	5160.2	26.5	15.9	46.0	46.0	46.0	35.0	35.0	35.0
794.4	6.81.3	21.2	41.0	761.8	5.211.1	17.1	16.2	64.0	64.0
760.0	10362.8	11.1	7.0	555.4	12360.1	7.1	2.2	79.0	79.0
612.8	14163.2	3.7	-6.0	612.8	14163.2	3.7	-6.0	71.0	71.0
567.8	19276.8	1.5	-10.0	571.0	16015.7	0.2	-10.0	26.0	26.0
559.0	16791.5	-1.0	-6.0	559.8	17567.5	-2.7	-6.0	44.0	44.0
515.6	1.743.7	-3.0	-10.0	515.6	1.743.7	-3.0	-10.0	67.0	67.0
566.0	14503.9	-5.5	-10.0	484.2	20336.5	-6.4	-20.0	73.0	73.0
435.2	22619.3	-12.0	-20.0	400.0	25154.2	-16.2	-33.0	16.0	16.0
389.4	25117.5	-17.0	-33.0	382.4	26264.4	-17.4	-33.0	20.0	20.0
360.0	32190.6	-31.0	-40.0					19.0	19.0

10 AUG. 1 1930 MRS. M. D.  
ASCE 2000-08. 1.2

卷之三

TABLE 13

POSITION: LATITUDE 43° 11' 51",  
LONGITUDE 143° 46' 56.01'  
ASLT. 515 m. 10.2

TABLE 13 CON'T

POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION	POSITION	REFRACTION
24.0000.0	41.00.0	-14.01	-10.09	22.5	56.00.0	0.07.1	224.0	13.1	1.000128										
24.0000.0	41.00.6	-15.01	-15.02	21.4	55.00.0	0.05.0	225.4	14.2	1.000126										
24.0000.0	41.00.5	-15.01	-15.02	20.3	54.00.9	0.04.9	225.7	15.4	1.000125										
24.0000.0	37.00.0	-17.01	-17.00	20.0	53.00.3	0.03.0	227.5	16.5	1.000124										
24.0000.0	37.00.5	-17.01	-17.02	19.5	52.00.0	0.02.0	228.7	17.0	1.000119										
24.0000.0	37.00.7	-17.01	-17.02	19.1	51.00.8	0.02.0	229.4	17.2	1.000117										
24.0000.0	37.00.9	-17.01	-17.02	18.5	50.00.4	0.04.0	230.7	17.4	1.000115										
24.0000.0	37.00.2	-17.03	-17.04	18.0	50.00.3	0.03.0	230.3	17.6	1.000113										
24.0000.0	37.00.7	-17.03	-17.04	18.0	49.00.2	0.03.0	230.0	18.2	1.000111										
24.0000.0	34.00.4	-12.06	-12.07	17.6	48.00.4	0.05.0	230.9	19.0	1.000109										
24.0000.0	34.00.2	-12.05	-12.06	17.0	47.00.6	0.05.0	232.2	15.6	1.000107										
24.0000.0	35.00.2	-12.05	-12.06	17.0	46.00.6	0.05.0	232.5	16.6	1.000105										
24.0000.0	32.00.5	-26.01	-27.01	19.1	46.00.6	0.05.0	234.0	17.8	1.000104										
24.0000.0	32.00.6	-27.03	-28.03	19.5	45.00.1	0.05.0	234.0	18.2	1.000102										
24.0000.0	31.00.9	-26.05	-26.05	19.6	44.00.9	0.05.0	234.0	18.6	1.000100										
24.0000.0	30.00.5	-29.06	-29.06	19.6	43.00.0	0.05.0	234.0	19.0	1.000099										
24.0000.0	30.01.1	-30.08	-30.08	20.1	42.00.7	0.05.0	234.0	19.4	1.000097										

STATION, ALTITUDE 4,510.7 FEET  
10 SEC. 1 145° 00' 00"  
ASCE 2100 1.0. 1.0

FROM COPY LIST  
2 Elevation  
LC-57  
100.31232 LST, LEG  
at GULF COAST, TEXAS  
52.40175 LST  
100.31232 LST, LEG

TABLE 14

REFLECTOR NUMBER	REFLECTOR GROUP NUMBER	REFLECTOR	REFLECTOR		REFLECTOR	REFLECTOR	REFLECTOR	REFLECTOR
			REFLECTOR	REFLECTOR				
150.0	5070.	26.5	13.9	4.6	140.2	7.2		
100.0	6019.	21.4	11.9	5.5	151.0	11.7		
750.0	8040.	16.0	9.0	6.7	156.1	10.7		
700.0	10512.	11.1	7.0	7.9	158.0	6.0		
650.0	12270.	6.7	1.2	6.0	79.7	4.7		
600.0	14715.	2.6	-6.1	5.0	15.0	4.0		
550.0	17067.	-1.5	-6.5	6.5	7.5	4.1		
500.0	19471.	-5.7	-25.6	1.6	17.0	4.6		
450.0	22171.	-10.0	-27.2	2.0	24.0	5.2		
400.0	25111.	-16.2	-35.1	7.0	23.4	15.7		
350.0	26574.	-22.4	-39.7	1.9	20.0	16.6		
300.0	32625.	-31.0	-46.7	2.0				

STATION ALTITUDE 3439.00 FEET MSL  
 10 AUG. 61 1514 hrs MDI  
 ASCENSION 140. 544

SIGNIFICANT LEVEL DATA  
 2200, 0544  
 WHITE SANDS

TABLE 15

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEPOINT CENTIGRADE	
882.6	3989.0	31.6	12.9	32.0
850.0	5090.2	26.6	12.3	41.0
830.8	5751.3	24.9	11.8	44.0
793.2	7078.7	20.9	10.7	52.0
737.4	9132.5	14.6	6.3	66.0
700.0	10570.8	10.0	0.6	91.0
683.6	11220.0	9.8	3.6	66.0
657.2	12292.0	7.2	-0	60.0
631.0	13389.1	4.8	-4	69.0
613.8	14129.5	3.7	-5.0	53.0
588.6	15244.6	1.1	-5.8	60.0
572.0	15999.8	-7.3	-9.4	50.0
563.8	16379.5	-1.1	-6.2	68.0
547.2	17161.5	-2.8	-14.8	39.0
539.2	17545.4	-2.8	-20.0	25.0
500.0	19501.0	-5.9	-24.6	21.0
415.6	24182.0	-15.1	-32.0	22.0
400.0	25132.3	-15.9	-34.7	18.0

STATION ALTITUDE 3489.00 FEET MSL  
 10 AUG. 61 1514 HRS MDT  
 ASCENSION NO. 544

UPPER AIR DATA  
 2220020544  
 WHITE SMITHS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

TABLE 16

GEOMETRIC ALTITUDE METERS MSL FEE	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	SOUND METER KNOTS	WIND DATA			INDEX OF REFRACTION
						WIND DIRECTION DEGREES (TN)	SPEED KNOTS	WIND DIRECTION DEGREES (TN)	
3989.0	882.6	31.6	12.9	32.0	1002.5	082.3	135.0	9.9	1.000264
4000.0	882.3	31.6	12.9	32.1	1002.3	082.2	135.1	9.9	1.000264
4500.0	867.3	29.3	12.7	36.2	992.6	079.7	140.4	10.7	1.000262
5000.0	852.6	27.0	12.4	40.3	983.2	077.1	145.0	11.6	1.000260
5500.0	838.0	25.5	12.0	42.9	971.2	075.4	148.6	12.6	1.000276
6000.0	823.6	24.2	11.6	45.5	959.0	073.9	151.6	13.3	1.000273
6500.0	809.4	22.6	11.2	48.5	947.3	072.1	153.2	13.7	1.000269
7000.0	795.4	21.1	10.8	51.5	935.7	070.4	154.1	12.9	1.000265
7500.0	781.4	19.6	10.3	54.9	924.2	068.6	154.8	11.8	1.000261
8000.0	767.7	18.1	9.8	58.3	912.8	066.8	155.7	11.7	1.000259
8500.0	754.2	16.5	9.2	61.7	901.6	065.0	157.2	11.8	1.000253
9000.0	740.9	15.0	8.5	65.1	890.6	063.2	159.3	12.0	1.000249
9500.0	727.7	13.4	8.6	72.4	879.4	061.4	159.1	10.7	1.000247
10000.0	714.6	11.8	8.7	81.1	868.4	059.6	156.6	8.2	1.000246
10500.0	701.8	10.2	8.6	89.8	857.5	057.0	145.1	5.7	1.000244
11000.0	689.1	9.9	5.6	74.5	844.0	057.0	118.9	3.7	1.000231
11500.0	676.6	9.1	2.8	64.4	831.5	055.9	105.0	3.2	1.000221
12000.0	664.3	7.9	1.0	61.6	820.3	054.3	90.1	3.0	1.000214
12500.0	652.2	6.7	-1	61.7	808.8	052.9	90.3	3.6	1.000210
13000.0	640.2	5.7	-2	65.8	797.1	051.7	88.9	4.2	1.000207
13500.0	628.4	4.6	-1.0	66.6	785.4	050.4	80.2	4.6	1.000203
14000.0	616.8	3.9	-4.1	55.8	773.4	049.3	74.8	4.9	1.000195
14500.0	605.3	2.8	-5.2	55.3	762.1	048.0	73.7	4.5	1.000190
15000.0	594.0	1.7	-5.6	58.5	751.1	046.7	61.5	4.7	1.000186
15500.0	582.9	.6	-7.0	56.6	740.0	045.4	95.7	5.7	1.000183
16000.0	572.0	-3	-9.4	50.0	728.9	044.1	107.4	6.8	1.000178
16500.0	561.2	-1.4	-7.4	63.5	717.6	043.0	116.6	6.0	1.000176
17000.0	550.6	-2.4	-12.7	45.0	707.4	041.5	120.1	6.4	1.000169
17500.0	540.1	-2.8	-19.3	26.7	695.4	040.9	135.3	6.9	1.000162
18000.0	529.8	-3.5	-21.1	24.1	684.0	040.0	147.0	7.2	1.000158
18500.0	519.7	-4.3	-22.3	23.0	672.9	039.0	167.1	5.8	1.000155
19000.0	509.8	-5.1	-23.4	22.0	662.1	038.0	200.1	4.5	1.000152
19500.0	500.0	-5.9	-24.6	21.0	651.4	037.1	236.5	5.1	1.000149
20000.0	490.2	-6.9	-25.4	21.1	641.0	035.9	249.9	5.9	1.000147
20500.0	480.7	-7.9	-26.2	21.2	630.8	034.7	257.1	7.0	1.000144
21000.0	471.3	-8.8	-27.0	21.3	620.8	033.5	253.0	8.6	1.000142
21500.0	462.0	-9.8	-27.7	21.4	611.0	032.3	249.9	10.1	1.000139
22000.0	453.0	-10.4	-28.5	21.5	601.3	031.1	246.5	11.5	1.000137
22500.0	444.1	-11.9	-29.3	21.6	591.7	030.0	241.9	12.7	1.000135
23000.0	435.5	-12.3	-30.1	21.7	582.4	028.8	236.9	13.8	1.000133

STATION ALTITUDE 3989.00 FEET MSL  
 10 AUG. 81 1514 HRS MDT  
 ASCENSION NO. 344

UPPER AIR DATA  
 2220020544

WHITE SANDS

GEOMETRIC COORDINATES  
 32°40.043 LAT UEG  
 106.37033 LON UEG

TABLE 16 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	SPEED OF SOUND METERS	WIND DATA DIRECTION DEGREES (IN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	426.9	-13.8	-30.9	21.9	573.2	027.6	1.000130
24000.0	419.6	-14.7	-31.7	22.0	564.1	026.4	1.000128
24500.0	410.3	-15.4	-32.8	20.7	554.3	025.6	1.000126
25000.0	402.1	-15.8	-34.3	18.6	544.2	025.1	1.000123

STATION ALTITUDE 3989.00 FEET MSL  
10 AUG. 81 1514 HRS MDT  
ASCENSION NO. 544

MANDATORY LEVELS  
2220020544  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 17

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE			REL. HUM. PERCENT	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS
		AIR DEGREES	DEWPONT CENTIGRAU <sup>o</sup>	TEMPERATURE CENTIGRAU <sup>o</sup>			
850.0	5086.	26.6	12.3	41.	145.7	11.0	
800.0	6830.	21.6	10.9	51.	153.9	13.3	
750.0	8652.	16.1	9.0	63.	157.9	11.9	
700.0	10560.	10.0	8.6	91.	142.7	5.3	
650.0	12576.	6.6	-1.1	62.	90.3	3.7	
600.0	14718.	2.3	-5.4	57.	73.2	4.4	
550.0	17006.	-2.5	-13.1	44.	126.5	6.4	
500.0	19473.	-5.9	-24.6	21.	236.2	5.1	
450.0	22154.	-11.1	-28.8	22.	245.2	12.0	
400.0	25090.	-15.9	-34.7	18.			